increase in potency can not be explained by the increased solubility in water. It is instead thought the novel structure of BisBAL promotes permeation into bacterial membranes. Penetration through the outer membrane of gram-negative bacteria appears to be largely independent of porins and is not influenced by antibiotic efflux mechanisms. Rather, BisBAL penetrates the outer membrane similarly to CHX or polymyxin B; its polycationic amphiphilic structure promotes an attraction to the negatively-charged, amphiphilic outer membrane.

Although the present invention has been described in relation to particular embodiments thereof, many other variations and modifications and other uses will become apparent to those skilled in the art. It is preferred, therefore, that the present invention be limited not by the specific disclosure herein, but only by the appended claims.

What is claimed is:

1. A composition, comprising:

a trivalent bismuth salt; and

at least one compound selected from the group consisting of dimercaprol, β-mercaptoethanol and dithiothreitol, wherein the molar ratio of said trivalent bismuth salt to said compound is approximately[1:2 to approximately 3:1.] 1:1 to approximately 3:1.

2. A composition, as recited in claim **1**, wherein said trivalent bismuth salt is selected from the group consisting of bismuth nitrate, colloidal bismuth subcitrate and bismuth subsalicylate.

[**3**. A composition, as recited in claim **1**, wherein said molar ratio is approximately 1:1 to approximately 3:1.]

4. A composition, as recited in claim **1**, wherein said molar ratio is approximately 2:1 to approximately 3:1.

5. A composition, as recited in claim **1**, further comprising a pharmaceutically acceptable diluent or carrier.

6. A composition, comprising:

a trivalent bismuth salt; and

at least one compound selected from the group consisting of dimercaprol, β-mercaptoethanol and dithiothreitol, wherein said trivalent bismuth salt and said compound are present in the molar ratio of approximately 3:1.

7. A method of preventing or inhibiting bacterial infection, comprising the step of:

administering a therapeutically effective amount of a composition comprising a trivalent bismuth salt and at least one compound selected from the group consisting of dimercaprol, β-mercaptoethanol and dithiothreitol to a patient, in need thereof.

8. A method, as recited in claim **7**, wherein said trivalent bismuth salt is selected from the group consisting of bismuth nitrate, colloidal bismuth subcitrate and bismuth subsalicylate.

9. A method, as recited in claim **8**, wherein the molar ratio of said trivalent bismuth salt to said compound is not less than approximately 1:2 nor more than approximately 3:1.

10. A method, as recited in claim **9**, wherein said molar ratio is approximately 1:1 to approximately 3:1.

11. A method, as recited in claim **9**, wherein said molar ratio is approximately 2:1 to approximately 3:1.

12. A method of eradicating bacteria, comprising the step of:

applying to an area on which it is desired to eradicate bacteria an effective amount of a composition comprising a trivalent bismuth salt and at least one compound selected from the group consisting of dimercaprol, β-mercaptoethanol and dithiothreitol.

13. A method, as recited in claim **12**, wherein said trivalent bismuth salt is selected from the group consisting of bismuth nitrate, colloidal bismuth subcitrate and bismuth subsalicylate.

14. A method, as recited in claim **13**, wherein the molar ratio of said trivalent bismuth salt to said compound is not less than approximately 1:2 nor more than approximately 3:1.

15. A method, as recited in claim **14**, wherein said molar ratio is approximately 1:1 to approximately 3:1.

16. A method, as recited in claim **14**, wherein said molar ratio is approximately 2:1 to approximately 3:1.

17. A method of preventing the formation or growth of biofilms, comprising the step of:

applying to an area on which it is desired to prevent the formation or growth of biofilms an effective amount of a composition comprising a trivalent bismuth salt and

at least one compound selected from the group consisting of dimercaprol, β-mercaptoethanol and dithiothreitol.

18. A method of preventing spoilage, comprising the step of:

applying to a product on which it is desired to prevent spoilage an effective amount of a composition comprising a trivalent bismuth salt and at least one compound selected from the group consisting of dimercaprol, β-mercaptoethanol and dithiothreitol.

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